

2002 P 73525 B(2)

(12) UK Patent Application (19) GB (11) 2 311 684 (13) A

(43) Date of A Publication 01.10.1997

(21) Application No 9606468.8

(22) Date of Filing 27.03.1996

(71) Applicant(s)
Intellprop Limited

(Incorporated in the Channel Islands)

PO Box 626, National Westminster House,
Le Truchot, St Peter Port, GUERNSEY, Channel Islands

(72) Inventor(s)
Jeffrey Wilson

(74) Agent and/or Address for Service
D Young & Co
21 New Fetter Lane, LONDON, EC4A 1DA,
United Kingdom

(51) INT CL⁶
H04M 3/56

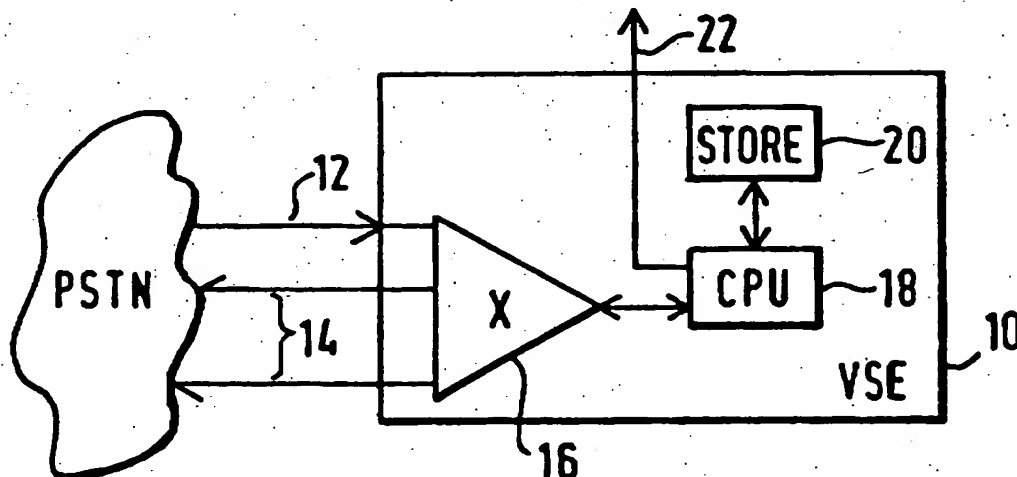
(52) UK CL (Edition O)
H4K KF56

(56) Documents Cited
EP 0604042 A1 US 5452348 A US 4995071 A

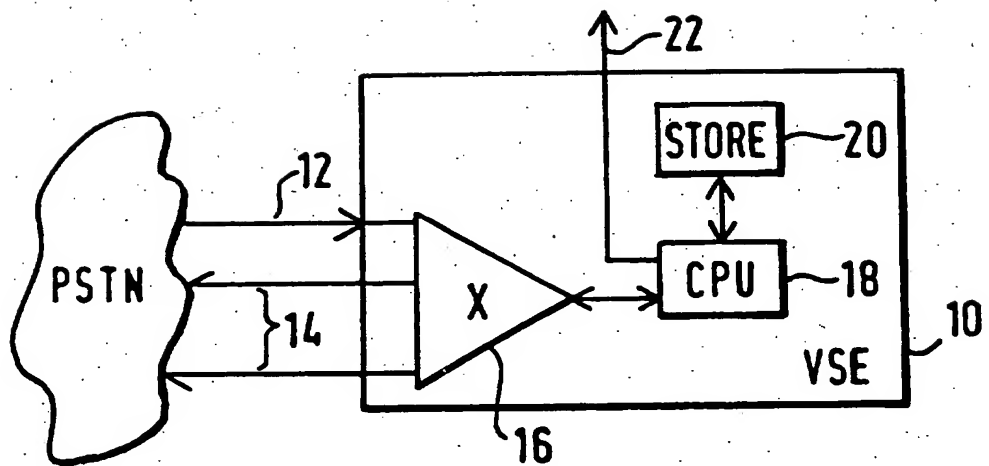
(58) Field of Search
UK CL (Edition O) H4K KF56 KF56A KOD3
INT CL⁶ H04M

(54) Telephone conferencing systems

(57) A telephone conferencing system includes a voice services equipment (VSE) 10 allowing a number of telephone calls to be connected together to form a conferencing function. The initiator of the telephone conference calls in on an incoming line 12 and is asked by the VSE 10 to give the telephone numbers of the desired other participants to the conference. These numbers are then stored in a store 20 and the system dials out to these telephone numbers on outgoing lines 14 with an invitation to join the conference on a reverse charge basis. Each participant can accept the reverse charge call by pressing a key such as "one" on the telephone keypad whereupon the participant is connected to the conference. After termination of the conference, the reverse charge billing information is sent to the charging authority.



1/1



TELEPHONE CONFERENCING SYSTEMS

This invention relates to telephone conferencing systems that enable a number of callers to participate in a conference by means of telephones.

5 Telephone or audio conferencing allows three or more people to participate in a single telephone conversation. Each person is able to hear all the other callers when they speak and the conversation can progress as if all the callers were in the same room.

10 Audio telephone conferencing systems exist for connection to both the analogue and digital telecommunications networks. These systems use either analogue bridges or digital signal processing to combine the audio from three or more callers and play it to all participants in the conference.

With the advance of digital systems, more complex algorithms have been employed to improve the quality of the speech heard by each caller.
15 Some of these advances include automatic gain control (AGC), speaker detection and echo cancellation.

Existing conferencing systems have two basic market areas, business conferencing and social chatlines. Business conferencing can be provided as a public service by the network operator, or provided locally from a
20 company's PABX. Chatlines are usually provided by independent service providers to callers who pay a premium rate for the call whilst accessing the service. The telephone numbers for chatlines are extensively advertised and there is no restriction on callers wishing to access the service, as long as the telephone being used has not been barred from initiating premium rate calls.

25 At present, there is no system available for residential or domestic use. In theory, the subscription services for business use could be utilised for domestic use, but these have to be booked in advance. Moreover, the initiator of the telephone conference bears the telephone charges for all participants; whereas this is generally acceptable for business use, for
30 domestic use it provides a financial disincentive, particularly with a large number of participants.

According to the invention there is provided a telephone conferencing system comprising a voice services equipment having a processing means and storage means, the processing means being operable:

- 5 (i) to request the telephone numbers of desired other participants to the conference from the initiator of the conference, and store the telephone numbers in the storage means,
- (ii) to initiate telephone calls to the desired participants on the basis of the stored telephone numbers, and request that the participants confirm acceptance of the respective call on a reverse charge basis by means of a predetermined action,
- 10 (iii) in response to the predetermined action, to enable connection of the respective desired participant to the conference, and
- (iv) to forward respective reverse charge billing information to the appropriate charging authority.

15 In a preferred embodiment of the invention, the predetermined action requested of each participant is activation of a specific key (such as "one") or sequence of keys, the processing means responding to this by connecting that participant to the conference.

20 Since the participants to the telephone conference are invited to accept the calls on a reverse charge (collect call) basis, each participant will bear the costs of their contribution to the conference call.

The telephone conferencing system can be utilised to initiate video conferences or data conferences, as well as audio conferences.

25 The invention will now be described by way of example with reference to the accompanying single figure drawing which shows a schematic block diagram of a telephone conferencing system according to an embodiment of the invention.

Referring to the drawing, a telephone conferencing system comprises a voice services equipment (VSE) 10 having one incoming line 12 and a plurality of outgoing lines 14, each line being connected to the public switched telephone network (PSTN). All the lines 12, 14 are connected via

30

a telephone switch 16 to a central processing unit (CPU) 18 of the VSE 10. The telephone switch 16 allows programmed switching between one or more selected lines and/or functions of the VSE 10, these functions being known in the art and so not shown specifically in the drawing. The VSE 10
5 may, for example, be a Telsis Hi-Call, some aspects of which are described in International Patent Application Publication No. WO92/22165. As shown in Figure 1, a temporary store 20 is connected to the CPU 18. The store 20 can be external to the VSE 10 or can, as shown, be constituted by internal memory of the VSE 10.

10 In operation, the initiator of the telephone conference calls in on the incoming line 12 by dialling a particular telephone number. A voice message from the VSE 10 greets the caller and requests the telephone numbers of the desired other participants to the telephone conference and also the caller's name. Following the necessary prompts, the initiator can enter these
15 telephone numbers by using the number keys on the telephone, or possibly by voice if the system has voice recognition capability. The CPU 18 stores the telephone numbers in the temporary store 20 and the caller's name in the usual disc store. The system then dials out to these numbers on the outgoing lines 14, gives the (recorded) name of the initiator, invites those
20 answering to join the conference and requests confirmation that the particular invited party is prepared to joint the conference on a reverse charge (collect call) basis, for example by pressing a specific key such as "one" on the telephone keypad. The CPU 18 responds to receipt of the signal corresponding to "one" to set the respective call as a reverse charge
25 call. As an alternative, the invitee may be asked to press a particular sequence of keys rather than a single key.

Thus each participant call to the conference can be set up on a reverse charge basis (apart, of course, from the conference initiator's call) and so the charges for the conference are spread amongst the participants,
30 rather than all being born by the conference initiator as with the existing business-type conference call facilities.

The charging information for the conference can, upon termination of the conference, be sent from the CPU 18 via a line 22 to the corresponding charging authority. Alternatively, the system can dial out on one of the lines 14 and send the charging information that way.

5 In order to increase the flexibility of the service, different systems could be provided for different area codes such that, for example, the conference initiator could choose the optimum system. Thus, for example, it may be preferable for the initiator to call a system at a different area code if all or most of the other participants are in that area code. Most
10 participants may then only be charged at local reverse-charge call rates.

The telephone conferencing system may provide the ability to predefine groups of telephone numbers which can be accessed easily, such as by the use of short codes to be input by the conference initiator. Thus, if telephone conferences are often arranged between the same (or at least
15 some of the same) participants, this facility will significantly simplify the setting-up operation.

The single figure drawing illustrates a simple system suitable for handling a single conference call. More complex systems can include a plurality of incoming lines 12 with the switch 16, CPU 18 and store 20 being
20 provided with the capacity to handle a plurality of conferences.

The service provider can select the operational modes in respect of different eventualities, such as the system receiving no reply when dialling out, or receiving an engaged signal, or not receiving confirmation of acceptance of the reverse charge call. Likewise, the system may provide for
25 people being added to the conference once it has started, if the participants so desire, such as on receipt by the system of a predetermined key input from one of the participants.

The drawing shows the system connected to the public switched telephone network. However, it will be clear that the system could
30 alternatively or additionally be connected to other types of network, such as private or mobile networks.

Although the system has been described in the context of audio conferencing, the principles of the invention can similarly be applied to video conferencing and data conferencing.

CLAIMS

1. A telephone conferencing system comprising a voice services equipment having a processing means and storage means, the processing means being operable:
- (i) to request the telephone numbers of desired other participants to the conference from the initiator of the conference, and store the telephone numbers in the storage means,
 - (ii) to initiate telephone calls to the desired participants on the basis of the stored telephone numbers, and request that the participants confirm acceptance of the respective call on a reverse charge basis by means of a predetermined action,
 - (iii) in response to the predetermined action, to enable connection of the respective desired participant to the conference, and
 - (iv) to forward respective reverse charge billing information to the appropriate charging authority.
2. A telephone conferencing system according to claim 1, wherein the predetermined action requested of each participant is activation of a specific key or sequence of keys on the participant's telephone, the processing means being operable on receipt of a signal corresponding to that key or that key sequence to invoke a reverse charge billing mode.
3. A telephone conferencing system according to claim 1 or claim 2, wherein the voice services equipment includes a voice store, and the initiator is asked to speak his/her name which is recorded in the voice store and then forms part of the spoken request to the desired other participants.
4. A telephone conferencing system according to claim 1, claim 2 or claim 3, wherein the processing means is responsive upon receipt of a signal corresponding to a predetermined key input to add one or more further

participants to the telephone conference.

5. A telephone conferencing system according to any one of claims 1 to 4, including means for predefining groups of telephone numbers of desired participants.

6. A telephone conferencing system according to any one of claims 1 to 5, wherein the telephone conference to be initiated is an audio conference.

10 7. A telephone conferencing system according to any one of claims 1 to 5, wherein the telephone conference to be initiated is a video conference.

8. A telephone conferencing system according to any one of claims 1 to 5, wherein the telephone conference to be initiated is a data conference.

15

9. A telephone conferencing system substantially as hereinbefore described with reference to the accompanying drawing.



The
Patent
Office

8

Application No: GB 9606468.8
Claims searched: All

Examiner: Al Strayton
Date of search: 15 May 1996

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): H4K: KF56; KF56A; KOD3

Int CI (Ed.6): H04M

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	EP 0 604 042 A1 (ATT)	
A	US 5 452 348 (ADAMS...)	
A	US 4 995 071 (WEBER...)	

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.